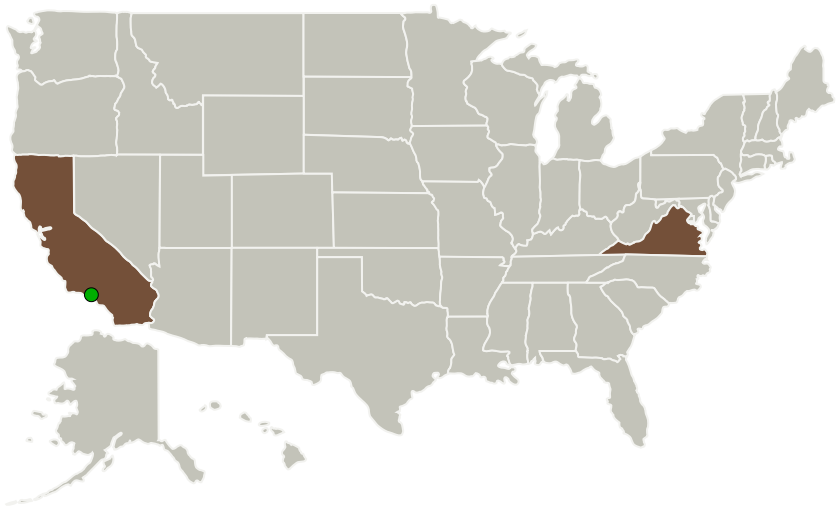
An Integration Platform for Dual-Polarized W-Band Antenna Arrays, Phase II

Completed Technology Project (2013 - 2016)

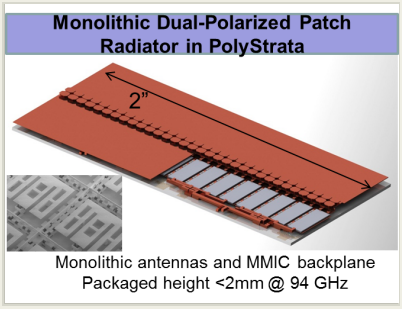
Project Introduction

A few NASA decadal missions such as the Aerosol Clouds Ecosystems (ACE) mission require space-based millimeter-wave radar apertures to complete the science objectives. We propose to create dual-polarized microfabricated copper-based antenna apertures with integrated MMICs that go beyond the capabilities funded to date at the upper frequencies of interest by enabling electronic scanning at W-band frequencies, while not precluding the co-location of Ka-band capability in the same aperture. This Phase II effort will constitute element-, feed-, MMIC-, and array-level analyses of the trade space for the proposed aperture. In addition we will provide a hardware demonstration of a W-band transmit/receive array tile showing MMIC integration on the necessary scale for W-band phased arrays and high-efficiency dual polarized antenna elements.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Nuvotronics, Inc	Lead Organization	Industry	Radford, Virginia
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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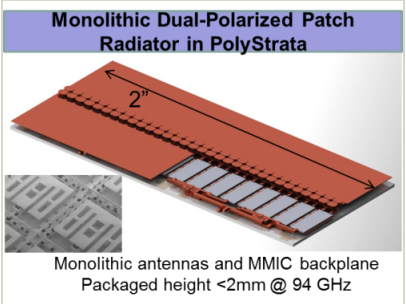
Primary U.S. Work Locations	
California	Virginia

Images



Briefing Chart Image
An Integration Platform for Dual-Polarized W-Band Antenna Arrays, Phase II
(https://techport.nasa.gov/image/135734)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Nuvotronics, Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

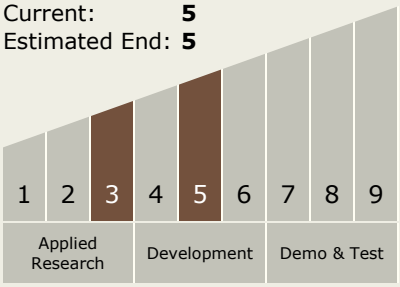
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Kenneth J Vanhille

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System